



Case Study: Colorado Mountain College/Navigator

By Cameron M. Burns



CMC puts its buildings on the Energy Navigator

In what could be a huge boost to regional energy and economics education, 25 large Colorado Mountain College buildings are now on CLEER's Energy Navigator, a software and hardware system that tracks energy use and displays it on kiosks around the community.

Facilities managers with the 11-location college are this month rolling the Energy Navigator out to the tens of thousands of students, staff, and faculty at the college, and they're even discussing ways to get it used in curricula, notably CMC's sustainability studies program. They're also talking about having live-in students engage in energy competitions between the three CMC residence halls.

"We're just starting to roll it out at various campuses," said Pete Waller, facilities director for the entire college. "Our plan is that by spring semester



The Lappala Center in Carbondale is just one of dozens of Colorado Mountain College buildings now on the Energy Navigator. Photos by Cameron M. Burns

2014 it will be rolled out so that everyone is aware of it."

The Energy Navigator website was first set up to display utility bill data and "live data" from many of the buildings across CMC campuses about six months ago, but in November the CMC and CLEER team made data for twenty of CMC's largest buildings visible to the public. In addition to displaying annual energy use at each site based on monthly utility bills, many CMC sites on Energy Navigator are also displaying energy use in 15-minute intervals so that people at the

college can see the energy use from a previous day on the following day. To date more than 100 buildings managed by Garfield Clean Energy partner governments have energy consumption visible on the Energy Navigator website. By watching how energy is used in their buildings, facility managers have adjusted operations and seen tens of thousands of dollars—sometimes a lot more—in cost savings.

The college already has various sustainability and energy reduction efforts underway, and Waller said he sees the Energy Navigator not as an

Lessons Learned

- Energy education is tricky—the Navigator helps people understand energy use in facilities
- Monitoring energy consumption is valuable for finding alternative ways to operate a facility



The Navigator is displayed on kiosks across CMC's campuses.

end in itself, but as an important tool that will help CMC gauge how it's doing with energy management across the college by reporting both energy consumption and renewable energy generation. He said it will allow CMC to compare results against what CMC administrators and students think is possible.

"What we've been doing is working with the facilities managers across the college," Waller said. "We've also been giving updates to the campus vice presidents and we did a presentation to the board of trustees, so people are aware of it as part of our overall energy management program."

Phil Meadowcroft, operations supervisor and energy manager for the whole college, anticipates the Navigator being used in college curricula on a day-to-day basis. It also "moves us down the road toward our goal of being carbon neutral," he said. "Plus, it encourages people in the community to watch it so that they can see we're using tax dollars and tuition in a responsible way." In addition to building energy usage being visible to the public at both GarfieldEnergyNavigator.org and ColoradoEnergyNavigator.com websites, CMC is installing touch-screen computer kiosks that allows staff and students to interact with the Energy Navigator website in

the various campus lobbies.

One of CMC's flagship programs is its Bachelor of Arts in sustainability studies. "This fits in well with that program," Waller said. "We think we might get more ideas from our sustainability students than anyone else, and then we're going to have to figure out which projects we want to go after to make improvements. It's really about improving operations and the Energy Navigator is a tool for that."

The decision to add the Navigator was easy, according to Meadowcroft. He and Waller looked at other systems but they were wildly expensive. CLEER's Mike Ogburn championed the Energy Navigator deployment for the college, and helped CMC staff set it up to mesh directly with the college-wide building automation system server. Energy Navigator already offers strong return on investment, but this integration reduced hardware and installation costs by 95 percent. This approach and collaborating with other governments through Garfield Clean Energy helped make Energy Navigator much more affordable than other energy monitoring systems, Meadowcroft said.

The Energy Navigator tracks energy use in buildings at the Spring Valley, Steamboat Springs, Breckenridge, Dillon, Leadville, Edwards, Glenwood

Springs, Rifle, Carbondale, and Aspen locations, and at the Central Services administrative offices in Glenwood Springs.

But the fun part, both Waller and Meadowcroft think, might be starting energy competitions between the three residence halls of live-in students, which are located in Steamboat Springs, Spring Valley and Leadville. Dozens of campuses around the country already host similar competitions. The University of Nevada at Reno, for example, describes its as "a competition between residence halls ... to consume the least energy (natural gas, electricity, water)."

"Other colleges do it and they're having a lot of fun with it," said Meadowcroft. "We are now in a position to do it with the Navigator. We're pretty excited about the residence hall competition."

Ogburn and CLEER's Erica Sparhawk will likely help set up the competition by working with the college as they develop parameters and rules that fit their college-wide goals and sustainability curriculum.

"With more than 20,000 students annually, the awareness of energy use and how to manage it will go up exponentially in our region," said Sparhawk. "We've already had people in the Eagle Valley notice CMC's Energy Navigator kiosk screen at the CMC campus there and tell us how glad they are to see strong interest in building energy use by CMC."

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